Claims

1. A method for producing homogenous colloidal nanoparticles, comprising the steps of
(a) extruding a composition comprising at least one amphiphilic component by means of a compounder,
(b) dispersing the extruded composition of step a) in an aqueous medium,
(c) optionally homogenizing the preparation of step b) at least once and/or
(d) optionally sterile filtrating the preparation of step b) or c),
wherein optionally at least one active agent is present in the composition of step a) and/or in said aqueous medium of step b).

2. The method of claim 1, wherein said colloidal nanoparticles are selected from micelles, liposomes, lipid nanospheres, preferably from liposomes.

3. The method of claim 1 or 2, wherein said homogenous colloidal nanoparticles are characterized by having a FRET of between about 100 % to about 80 % of reference colloidal nanoparticles produced by the film method.

4. The method of any one of the claims 1 to 3, wherein said amphiphilic component is selected from fats, oils, waxes, sterols or lipids such as cholesterol or phospholipids, lysolipids, lysophospholipids, sphingolipids or pegylated lipids with a positive, negative or neutral net change.

5. The method of any one of the claims 1 to 4, wherein said amphiphilic component is a cationic lipid or a mixture of lipids, preferably a mixture of at least one cationic lipid and optionally a neutral lipid.

6. The method of any one of the claims 1 to 5, wherein said colloidal nanoparticles have a polydispersity index (PI) of below about 0.4, preferably of below about 0.2.

7. The method of any one of the claims 1 to 6, wherein step a) is performed without organic solvent and/or detergent.

8. The method of any one of the claims 1 to 7, wherein step a) is performed without an aqueous medium.

9. The method of any one of the claims 1 to 8, wherein the temperature during the extruding in step a) is between about 5°C to about 100°C, preferably between about 20°C to about 70°C and most preferably between about 25°C to about 50°C.

10. The method of any one of the claims 1 to 9, wherein the pressure during the extruding in step a) is between about 0,2 bar to about 100 bar, preferably about 0,5 bar to about 10 bar.

11. The method of any one of the claims 1 to 10, wherein said compounder is a batch extruder or a continuous extruder.

12. The method of any one of the claims 1 to 11, wherein said active agent is selected from biologically active agents such as dietary supplements, vitamins, cosmetics, diagnostic or therapeutic agents, preferably from diagnostic or therapeutic agents.

13. The method of any one of claims 1 to 12, wherein the extruded composition of step a) is stored as an intermediate product.

14. The method of claim 13, wherein said intermediate product is supplied to a hydration process.

15. The method of any one of the claims 1 to 14, for manufacturing a dietary, cosmetic or pharmaceutical composition.

16. Use of a compounder comprising a cylinder and a plunger, wherein the cylinder has an open bore of about 0.1 mm to about 2 mm, preferably of about 0.2 mm to about 1.4 mm, more preferably of about 0.4 mm to about 1.2 mm and most preferably of about 0.8 mm at the lower end for the manufacture of colloidal nanoparticles.

17. Cationic colloidal nanoparticles, obtainable by a method of any one of the claims 1 to 15, wherein said nanoparticles are homogeneous on a molecular level and free of an organic solvent and/or detergent.